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ABSTRACT

This paper presents findings of a study that investigated associations between the learning environments of schools and the principal's interpersonal behavior as perceived by teachers. It also describes the development and validation of an instrument to measure principals' interpersonal behaviors with their teaching staffs. The questionnaire was completed by 50 principals and 850 teachers at 56 secondary schools from all states and territories, representing both government and non-government schools in Australia. Findings indicate that a positive relationship existed between the principal's leadership behavior and the teachers' perceptions of the school as being innovative and empowering them in their working environments. In the assessment of their environment, teachers were least affected by their principal's understanding and helpful behavior. They were most affected by the principal's leadership behavior and whether they were granted independence to carry out their tasks. Principals with critical, admonishing, or uncertain interactive styles negatively affected teachers. Six figures and 9 tables are included. (Contains 26 references.) (LMI)

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RELATIONSHIPS BETWEEN PRINCIPALS' INTERPERSONAL BEHAVIOR WITH TEACHERS AND THE SCHOOL ENVIRONMENT

ED 395 392

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In the past few years much attention has been given to the development and use of instruments to assess the realities of the classroom and school environment from the perspectives of students and teachers. This paper describes a research study that investigated associations between the learning environments of schools and the principal's interpersonal behavior as perceived by teachers. The paper first describes the development and validation of an instrument to measure principals' interpersonal behaviors with their teaching staff. The instrument developed was based on the Questionnaire on Teacher Interaction, which was first devised in The Netherlands and contained eight scales of measurement such as Leadership and Understanding. Secondly, the paper describes the method by which the study took place and the results obtained. The questionnaire was sent to 56 schools throughout Australia where it was completed by the principal and a random sample of 20 teachers in each school. The paper then reports on the relationship between the principals' interpersonal behavior as assessed by the new questionnaire (the Principal Interaction Questionnaire) and the teachers' perception of the school environments as assessed by the well known School Level Environment Questionnaire. The study showed that there was a number of significant correlations between the principal's interpersonal behavior and the school environment. For example, there was a positive relationship between the principal's leadership behavior and the teachers' perceptions of the school as being innovative and them feeling empowered in their working environment.

Introduction

In schools teachers are in constant communication with other people in the normal course of their duties. In the classroom, communication with the students is an essential part of the learning process. Outside the classroom teachers are in communication with their Heads of Department, other teachers, parents and the principal. A significant aspect of most teachers' work is the communication and relationship that they have with the principal. In some places, the principal will have direct power in appointing or dismissing teachers and in determining their working conditions. Principals may have vested in them the task of implementing government education policy. In all cases, the communication that principals have with their teachers is important in the eyes of the teachers.

Some teachers may feel threatened by a dominant principal and will respond with a set of behaviors that is defensive and cautious. Other teachers might respond aggressively to this situation. Some teachers may feel encouraged by a sympathetic principal, while others might see this encouragement as extra work pressure. This paper explores the relationship between the principal's interpersonal behavior and the school environment, as perceived by the teachers.

Learning Environments

Learning environments have been studied with a view to identifying those characteristics of the environment that are associated with enhanced student achievement. Past learning environment studies have shown that interpersonal behavior is important in determining student learning outcomes, (Wubbels and Levy, 1993). They wrote, (p. 57), that, compared to other factors measured in their study, interpersonal teacher behavior was strongly related to achievement. They also found a strong relationship between student attitude and the students' perception of the teacher's interpersonal behavior.

The focus of this study is, not so much the classroom environment (or climate as it is sometimes called), but the whole school environment. Fisher, Fraser and Wubbels (1993) wrote about the distinction between school-level and classroom-level environment, 'Whereas classroom climate normally refers to relationships between teachers and their students or among students, school climate pertains to a teacher's relationships with other teachers, senior staff and the school principal.' They wrote that the school environment can be considered to be more global than the classroom environment.

That positive school environment is linked to student achievement has been written in educational literature over a number of years. Hughes (1991, p. 62) wrote that every school has a pervasive climate which has an influence on the behavior of teachers and students to succeed in teaching and learning. The assertion is that if teachers have a supportive and conducive working environment then better student achievement will be the result. Purkey and Smith (1985) concluded that research is persuasive in suggesting that student performance is strongly affected by school culture, which is, in turn, related to the school environment.

Interpersonal Behavior

Extensive research of interpersonal behavior was undertaken by Leary, working in the clinical psychology field and reported in his text, Interpersonal Diagnosis of Personality (1957). Leary (p. 4) described interpersonal behavior as that 'which is related overtly, consciously, ethically or symbolically to another human being (real, collective or imagined)'. Much of Leary's work was based on observations made of psychiatric patients' interpersonal relationships with their psychologists or psychiatrists and also their relationships with other patients - especially those in the group therapy situation. Leary believed (p. 17) that 'personality theories should hold for adjustive and maladjustive behaviors'.

Leary saw interpersonal behavior as the most important dimension of personality from the standpoint of human survival (p. 12). He believed, (p. 13), that much of this stemmed from man's long and helpless infancy which builds up a dependency on other human beings. He believed that the way they communicate with other humans is indicative of their personality.

He concluded that a person's interpersonal behavior could be described in two main ways. The first is that it can be measured on a continuum that has dominant behavior at one end and submissive behavior at the other. Secondly, a person's interpersonal behavior could be measured on another continuum which has cooperative behavior at one end and oppositional behavior at the other. Leary proposed a two dimensional model that had the dominant/submissive continuum as the vertical axis and the cooperative/oppositional continuum as the horizontal axis (Figure 1). By combining the continua in this way it became possible to consider combinations of these behaviors into eight sectors - eg DC - dominant/cooperative or CS - cooperative/submissive. A person's interpersonal behavior could then be mapped on the model.

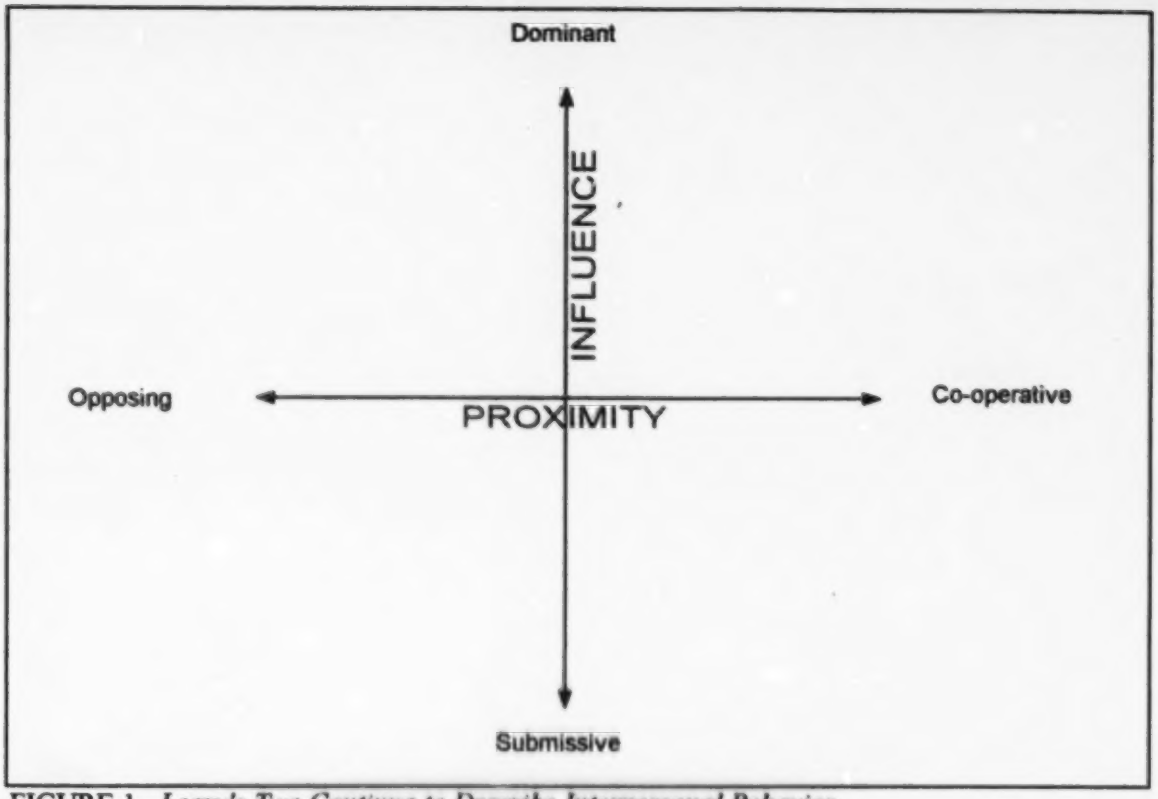

FIGURE 1. *Leary's Two Continua to Describe Interpersonal Behavior.*

The Leary Model has had successful application in areas of psychological testing: Foa (1961), Brown (1965) and Dunkin & Biddle (1974). The last two demonstrated the significance of the Proximity and Influence dimensions in teachers' efforts to influence classroom events.

Questionnaire on Teacher Interaction (QTI)

Wubbels, Creton and Hooymayers (1990) adapted the systems theory of communication from the field of family therapy for use in classroom communication (Watzlawick, Beavin and Jackson, 1967). In the systems perspective of communication, behaviors of the participants influence each other. In a classroom, for example, the behavior of the teacher is influenced by the behavior of students and the teacher's behavior, in turn, influences the behavior of the students. From this theoretical base Wubbels, Creton and Hooymayers adapted the Leary Model with its co-ordinate system and developed a questionnaire of eight scales to measure each of the octants of the model.

One of the advantages that Wubbels et al (p. 16) saw of this model was that it allowed for the recording of communication *styles* which only emerge after many interactions have occurred between the people concerned. They express this as the difference between short-term 'molecular' teacher behavior and long-term communication style. Molecular behaviors are described as the isolated behaviors which only last a few minutes or seconds. Examples would be to ask a student a question or to give a short explanation. Observing an isolated lesson, then, is less likely to reveal a true impression of a teacher's interpersonal communication style. This must be done based on experiences that occur over a longer time frame where repetition of certain behaviors occurs. 'Once the behaviors are repeated frequently over time, the 'molecular' evolves into the 'molar', or extended behaviors which comprise the communication style.' The Leary model can be expanded into eight sectors as shown in Figure 2.

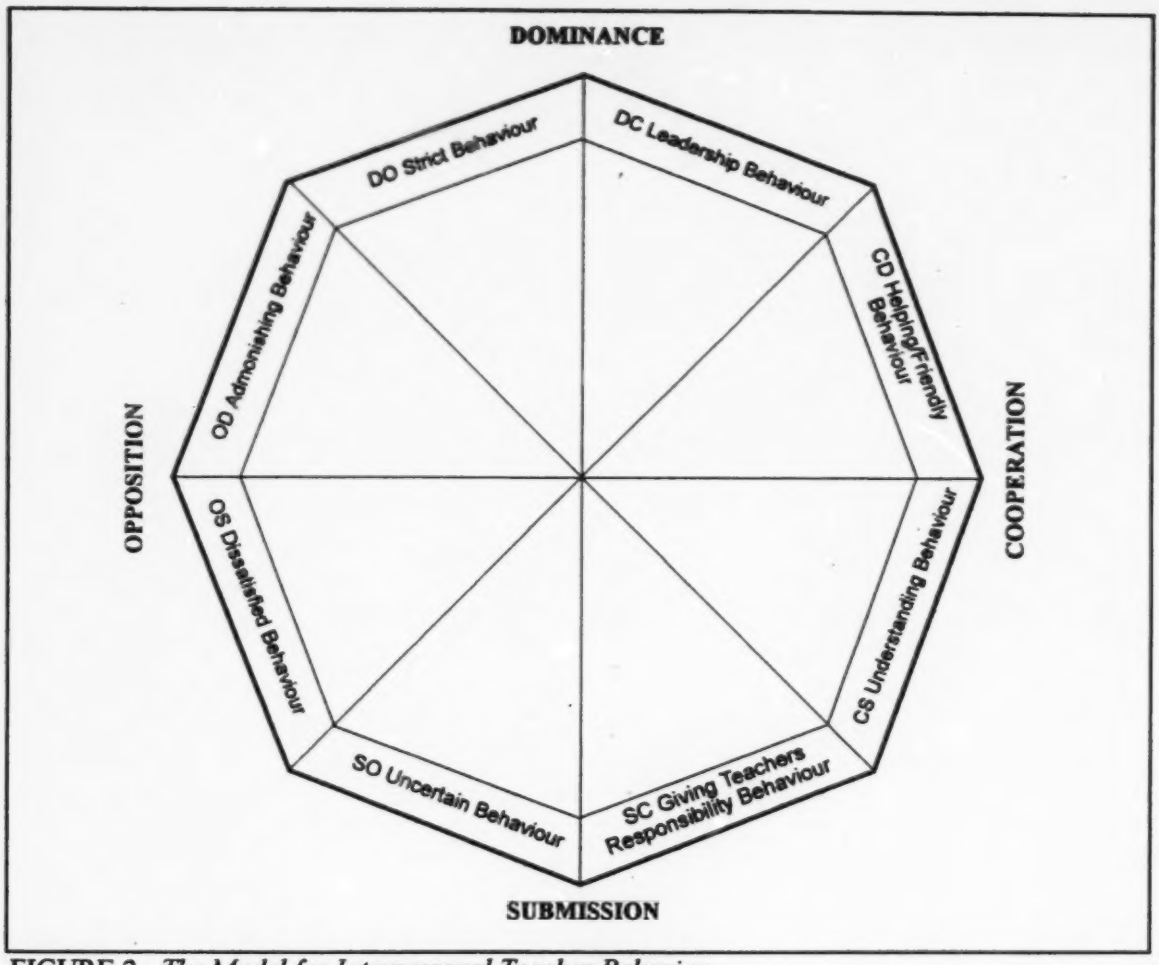

FIGURE 2. *The Model for Interpersonal Teacher Behavior.*

Each sector has two types of interpersonal behavior. For example, the sector designated Leadership is described as dominant/cooperative (DC) because both of those interpersonal behaviors are present. 'Dominant' is named first because that is the more significant in that sector. In the Helping/Friendly behavior sector, cooperation is more significant and so, is named first and labelled CD.

Reliability and Validity of the QTI

The reliability and validity of the QTI has been investigated in various countries, including The Netherlands, USA and Australia. Wubbels (1993), described the Australian study in which 792 students and their 46 teachers were involved. The sample came from year 11 science and mathematics classes in Western Australia and Tasmania. The degree to which each item in a scale measures the same dimension of behavior for a teacher is called the scale's internal consistency or reliability. In the studies carried out in The Netherlands and the USA, Wubbels and Levy (1991) reported that seven of the eight measured reliabilities were in excess of .90. In the Australian study the reliabilities ranged from .68 to .85. This is considered to indicate a satisfactory level of reliability.

The questionnaire was also investigated to ascertain the degree of agreement between students about the behavior of individual teachers. Using Cronbach's alpha reliability measure, Brekelmans (1989) calculated a mean of 0.90 for 206 classes. Wubbels et al (1993, p. 21) wrote that this was 'considerably higher than the standard often used for inter-observer reliability of 0.8'.

When she looked at the generalizability of the QTI, Brekelmans (1989) concluded that it should be administered to at least ten students in the class to be reliable, that it does not need to be administered more than once a year and that a minimum of two classes should complete the questionnaire on any one teacher. The intra-class correlations for the QTI were found to be above 0.8 for every scale leading to the conclusion that differences in student perceptions were more a result of class differences than student differences.

Wubbels, Creton and Hooymayers wrote that, according to their investigations there is a relationship between interpersonal teacher behavior and student outcomes (1990, p. 6). 'It appears that this relation between the students' perceptions of interpersonal teacher behavior and student outcomes is stronger than the relation between curriculum, teachers' opinions and the students' perceptions of other aspects of the learning environment on the one hand and student outcomes on the other hand'.

The Questionnaire on Teacher Interaction which Wubbels et al developed has been used to plot profiles of various teacher behaviors and a teacher typology classification was developed. There were eight teacher types described. Some of the terms used to describe the different types of teachers were directive, authoritative, tolerant, uncertain and repressive. The QTI has also been used for the professional development of teachers (Fisher, Fraser and Cresswell, 1995). They described students' perceptions of their science teachers and found the typologies were different, for example, for a beginning teacher and one who had many years of experience. The beginning teacher had a higher level of uncertainty compared to the experienced teacher.

Development of the Principal Interaction Questionnaire (PIQ)

An assumption underlying this study is that the theory underpinning the Questionnaire on Teacher Interaction to measure a *teacher's* interpersonal behavior with students could also hold true for measuring a *principal' s* interpersonal style with teachers. In order to investigate the principal's interaction style with teachers a questionnaire was developed.

This had been done, firstly, by Kremer-Hayon and Wubbels (1993, p. 113), who described the development of the Questionnaire on Principal Interaction (QPI) from the Questionnaire on Teacher Interaction. The original Dutch and American versions were translated into Hebrew. Some of the scales were also changed - for example Student Responsibility and Freedom became Giving Teacher Responsibility and Freedom, Admonishing behavior became Objecting. A 62 item questionnaire was the result and responses from 96 teachers in Israel, were correlated with a measure of teacher satisfaction.

A similar process was used in this study. The Principal Interaction Questionnaire (PIQ) was developed from the 48-item version of the QTI. In designing the PIQ a number of criteria were seen as being desirable:

1. The questions should be designed to allow for a complete analysis of the eight sectors of the Leary Model.

Table 1

Description of Scales in the Principal Interaction Questionnaire (PIQ)

Scale Name	Description of associated behaviours	Sample Item	Leary's Category
Leadership Behaviour	Notice what's happening, lead, organise, give orders, set tasks, determines procedure, explain, hold attention, give directions.	This Principal gives clear directions.	DC - Dominant Cooperative
Helpful Friendly Behaviour	Assist, show interest, join, behave in a friendly or considerate manner, able to make a joke, inspire confidence and trust.	This Principal takes a personal interest in teachers.	CD - Cooperative Dominant
Understanding Behaviour	Listen with interest, empathise, show confidence and understanding, accept apologies, look for ways to settle differences, be patient, be open with teachers.	If teachers have something to say, this Principal will listen.	CS - Cooperative Submissive
Giving Teachers Responsibility and Freedom Behaviour	Give teachers opportunity to work independently, allow teachers time for professional development, give freedom to choose teaching methods.	This Principal gives teachers the opportunity to develop their own courses.	SC - Submissive Cooperative
Uncertain Behaviour	Keep a low profile, hesitant, timid, not sure what to do.	This Principal changes his/her mind.	SO - Submissive Opposing
Dissatisfied Behaviour	Think teachers are not giving their best, criticise, question, suspicious.	This Principal puts teachers down.	OS - Opposing Submissive
Admonishing Behaviour	Get angry, look down on the teachers, express irritation, punish.	This Principal is impatient with the teachers at this school.	OD - Opposing Dominant
Strict Behaviour	Keep reins tight, check, judge, strict adherence to rules and regulations, inflexible.	This Principal keeps a tight rein on teachers' activities at school.	DO - Dominant Opposing

2. The items should be written to focus on the interpersonal behavior of the principal - not a general questionnaire on the principal's leadership style.

3. Keeping in mind the time pressure that teachers work under, the questionnaire should be relatively economic in the number of items, so that it could be completed in one session of around twenty minutes.

4. It should be designed so that the principals can see the relevance to their own schools.

5. The format should be easy to handle without the constant need to be shuffling pages to find instructions.

The final version of the PIQ was composed of six items for each of the eight scales of interpersonal behavior being measured. The scales are described in Table 1. Possible responses for each item listed at the end of the item were, Never, Rarely, Sometimes, Often, Always.

The School Level Environment Questionnaire (SLEQ)

To measure the school environment, the School Level Environment Questionnaire (SLEQ) was chosen. This questionnaire is one of a range of environment questionnaires dating back to the 1970's. Moos (1979) wrote that it was desirable to identify different domains of a social environment. He believed that the same person can behave differently in different environments. Based on his work, in the child care field, he wrote (p. 3) that 'the social ecological setting in which students function can affect their attitudes and moods, their behavior and performance and their self-concept and general sense of well-being.'

In investigating the social environment Moos (p. 13) referred to three domains of interest. *Relationship dimensions* are indicated by the way that students work with each other (their 'affiliation'), the amount of involvement that they have in the setting, and the extent to which they express themselves freely. It can be reflected by their attentiveness and participation in activities and discussions. *Personal Development dimensions* are indicated by the person's competitiveness and independence. *System Maintenance and Change dimensions* indicate how orderly the system is, if there is a clarity of expectation. It measures, also, how the system keeps control or responds to change.

Moos developed the Work Environment Scale (1979) which contained ten different scales covering each of his three domains. The relationship domain was made up of scales in Involvement, Peer Cohesion and Staff Support; the personal development domain was composed of scales in Autonomy and Task Orientation; the system and maintenance and change domain had scales in Work Pressure, Clarity, Control, Innovation and Physical Comfort.

It is interesting to note the large number of the characteristics of effective schools that depend on *relationships* between people, 1) within the school and 2) at the school and in the community. Inputs and processes are essential to the production of worthwhile outputs from a school. However, if the interpersonal relationships are not effective then, no matter what the level of input or organisation of the processes, the outputs will not reach their potential.

Instruments developed to describe educational environments include the College Characteristics Index (CCI; Pace and Stern, 1958) which measures students or teachers perceptions of 30 environment characteristics; the High School Characteristics Index (HSCI; Stern, 1970) which is an adaptation of the CCI; the widely used Organisational Climate Description Questionnaire (OCDQ; Halpin and Croft, 1963); and the Work Environment Scale (WES; Moos, 1981; Fisher and Fraser, 1983). The WES has been used to research differences between the school environments of high schools and primary schools (Docker, Fraser and Fisher, 1989) and in teachers' practical attempts to improve their school environments (Fraser, Docker and Fisher, 1988).

The School Level Environment Questionnaire (SLEQ) measures teachers' perceptions of psychosocial dimensions of the environment of a school. Fraser (1994), wrote that the 'School-

Level Environment Questionnaire was designed especially to assess school teachers' perceptions of psychosocial dimensions of the environment of the school' (p. 504).

Table 2

Description of Scales in the School Level Environment Questionnaire (SLEQ)

Scale Name	Description of scale	Sample Item	Moos's Category
Student Support	There is good rapport between teachers and students, students behave in a responsible self-disciplined manner.	There are many disruptive, difficult students in the school.(-)	Relationship
Affiliation	Teachers can obtain assistance, advice and encouragement, and are made to feel accepted by their colleagues.	I feel that I could rely on my colleagues for assistance if I should need it.(+)	Relationship
Professional Interest	Teachers discuss professional matters, show interest in their work and seek further professional development.	Teachers frequently discuss teaching methods and strategies with each other.(+)	Personal Development
Mission Consensus	Consensus exists within the staff about the goals of the school.	Teachers agree on the school's overall goals. (+)	System Maintenance and System Change
Empowerment	Teachers are empowered and encouraged to be involved in decision making processes.	Decisions about the running of this school are usually made by the principal or a small group of teachers. (-)	System Maintenance and System Change
Innovation	The school is in favour of planned change and experimentation, and fosters classroom openness and individualisation.	Teachers are encouraged to be innovative in this school.(+)	System Maintenance and System Change
Resource Adequacy	Support personnel, facilities, finance, equipment and resources are suitable and adequate.	The supply of equipment and resources is inadequate.(-)	System Maintenance and System Change
Work Pressure	The extent to which work pressures dominate school environment.	Teachers have to work long hours to keep up with the work load.(+)	System Maintenance and System Change

Items designated (+) are scored by allocating 5, 4, 3, 2, 1 respectively.
Items designated (-) are scored in reverse order.

The size of the SLEQ (56 items) is considered to be economical and easy to administer. Each of the eight scales, therefore, has seven items - each of which is scored on a five point scale: Strongly Agree, Agree, Not Sure, Disagree and Strongly Disagree. An 'ideal' version of the questionnaire exists also to elicit opinions of teachers and principal regarding their 'desired' situation.

Reliability and Validity of SLEQ

The internal consistency (using Cronbach alpha) of the SLEQ has been measured in three separate samples (Fraser, p. 504) and ranged from 0.64 to 0.91 indicating satisfactory internal consistency for a scale composed of seven items. The discriminant validity which is a measure of the correlation of the scale with the other seven scales ranged from 0.17 to 0.38 for the first sample, 0.05 to 0.29 for the second and 0.10 to 0.42 for the third sample. This indicates a satisfactory level of discriminant validity and shows that 'the instrument measures distinct although somewhat overlapping aspects of the school environment', (Fisher, Fraser and Wubbels, 1993, p. 106).

Methodology

A broad range of secondary school types was used in this study - government and non-government, rural and suburban. Secondary schools were chosen because, generally, they are larger and would have sufficient teachers (at least 20) to give a reasonable sample size. The non-government schools included both those with a religious base and those without. Requests were sent out to 277 schools in every state and territory in Australia, asking principals if they would allow 20 members of their staff to participate in the study and asking them if they would also complete the questionnaire.

It was decided to investigate the actual and ideal perceptions of the teachers and principals in the study. The questionnaire that was sent to the schools had two main parts. The first part was the actual and ideal versions of the Principal Interaction Questionnaire, the second part was the actual and ideal versions of the School Level Environment Questionnaire.

At the time that the data were analysed, information was available from 56 schools from all states and territories, representing both government and non-government schools. The total number of questionnaires analysed was 900, made up of 850 teachers and 50 principals.

Results

Principal Interaction Questionnaire (PIQ)

There were four initial sets of results - responses from the teachers' questionnaires in both actual and ideal modes and also responses from the from the principals' questionnaires in actual and ideal modes. Results were also obtained for each individual school and principal. In the initial analysis the results of all the schools were combined rather than treated individually - to allow for a full and accurate analysis of the questionnaire's statistical properties - ie individual teachers were used as the unit of analysis. Results from each school were returned to the principals. This paper reports the results obtained from analysis of the teachers' questionnaires only.

Teachers' Perceptions of the Principal's Actual Interpersonal Behavior

The responses from the initial set of results, with all 850 teachers were analysed with the aim of checking the reliability of each scale again using the Cronbach alpha reliability measure. The results for this analysis are listed in Table 2 and indicate that the scales gave measures ranging from 0.74 to 0.89, with a mean value of 0.83. These were regarded as satisfactory (Nunally, 1967).

Table 3
Teachers' actual perception of principals.

Scale	Mean	Std Dev	Alpha Reliability
Leadership	23.56	3.75	0.83
Understanding	23.91	4.22	0.89
Uncertain	12.56	3.63	0.83
Admonishing	11.01	3.95	0.86
Helpful/Friendly	22.28	4.36	0.87
Teacher Responsibility	23.75	3.15	0.77
Dissatisfied	11.64	3.80	0.87
Strict	15.72	3.77	0.74

N = 850

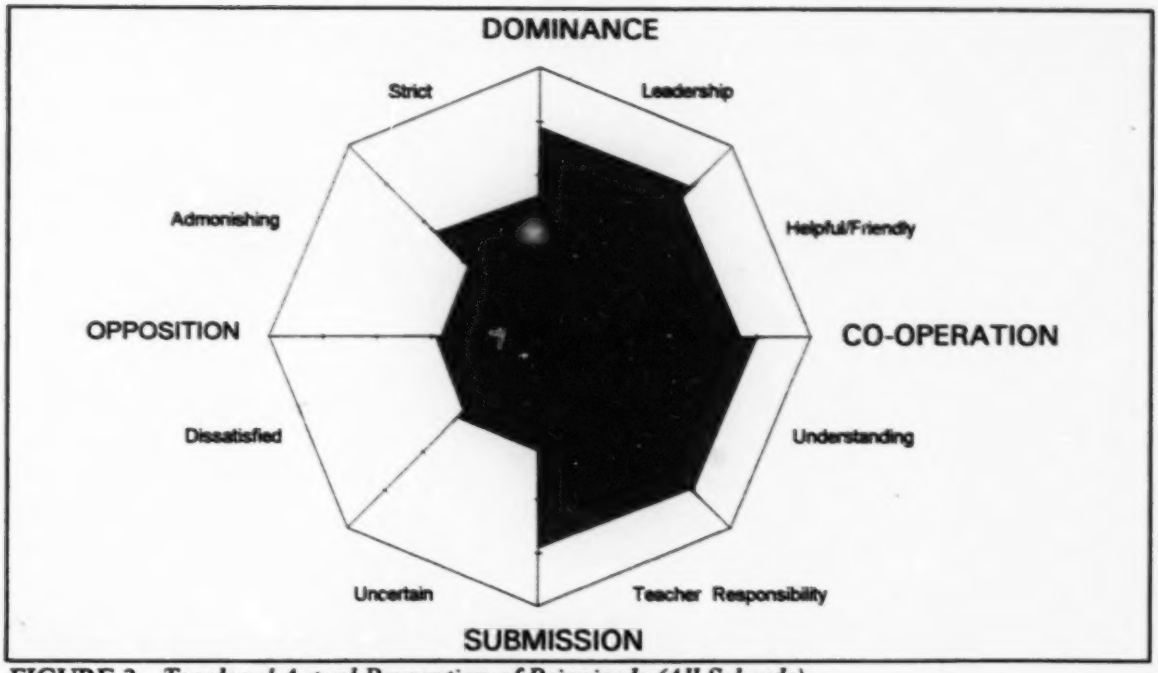

FIGURE 3. *Teachers' Actual Perception of Principals (All Schools).*

The results from the data were plotted into profiles based on the interpersonal model. The average profile of all principals resulting from analysis of all teachers' actual perceptions of them is shown in Figure 3. The profile shows relatively high scores in the areas of Leadership, Helpful/Friendly, Understanding and Giving Teacher Responsibility Behaviors. There is some similarity to the Teacher Typology Type 2 as described by Brekelmans, Levy and Rodriguez (1993, p. 48) - this type of teacher was categorised as 'Authoritative'. The profile shown here, however, has a much higher reading in the area of Giving Teacher Responsibility and Freedom.

Analysis of Variance Between Schools

A desirable characteristic of a good measuring instrument is that it should be able to measure differences in teachers' responses in different schools. Teachers within the one school should perceive it relatively similarly, while there should be a difference in perceptions from school to school. This was measured for each scale of the PIQ using one-way ANOVA with school membership as the main effect. This can be reported as a ratio of the measurement of the variance between schools compared to the variance within schools. This figure, known as eta^2 ranged from .25 for the Giving Teacher Responsibility Behavior scale to .39 for the Admonishing Behavior scale, with a mean for eta^2 of .31. At a confidence level of $p<.01$ all of these results are regarded as being significant and show that the instrument is able to distinguish satisfactorily between different schools.

Teachers' Perceptions of an Ideal Principal's Interpersonal Behavior

In examining the results obtained from the teachers' perception of an ideal principal the alpha reliabilities ranged from 0.65 to 0.76. The results are shown in Table 4 and drawn in profile form in Figure 5.

Table 4

Teachers' Perception of an Ideal Principal

Scale	Mean	Std Dev	Alpha Reliability
Leadership	28.23	1.75	0.66
Understanding	28.08	1.99	0.74
Uncertain	10.47	2.60	0.70
Admonishing	8.22	2.05	0.65
Helpful/Friendly	26.48	2.44	0.70
Teacher Responsibility	24.97	2.46	0.73
Dissatisfied	9.52	2.42	0.76
Strict	15.19	3.41	0.71

N = 850

The profile shows that the means for the scales on the cooperative side of the model have increased values, while those on the oppositional side show a decrease. The general shape of the profile is similar to the 'actual' perception, but with slight increases in the Leadership, Helpful/Friendly, Understanding and Giving Teacher Responsibility sectors. The percentage changes are shown in Table 5.

The biggest change observed here in is the area of Admonishing behavior where teachers who already perceive their principals to have relatively low levels of this behavior would see an ideal principal as having even less. A two tailed t-test of these results showed that there significant differences between actual and ideal for all scales on the PIQ.

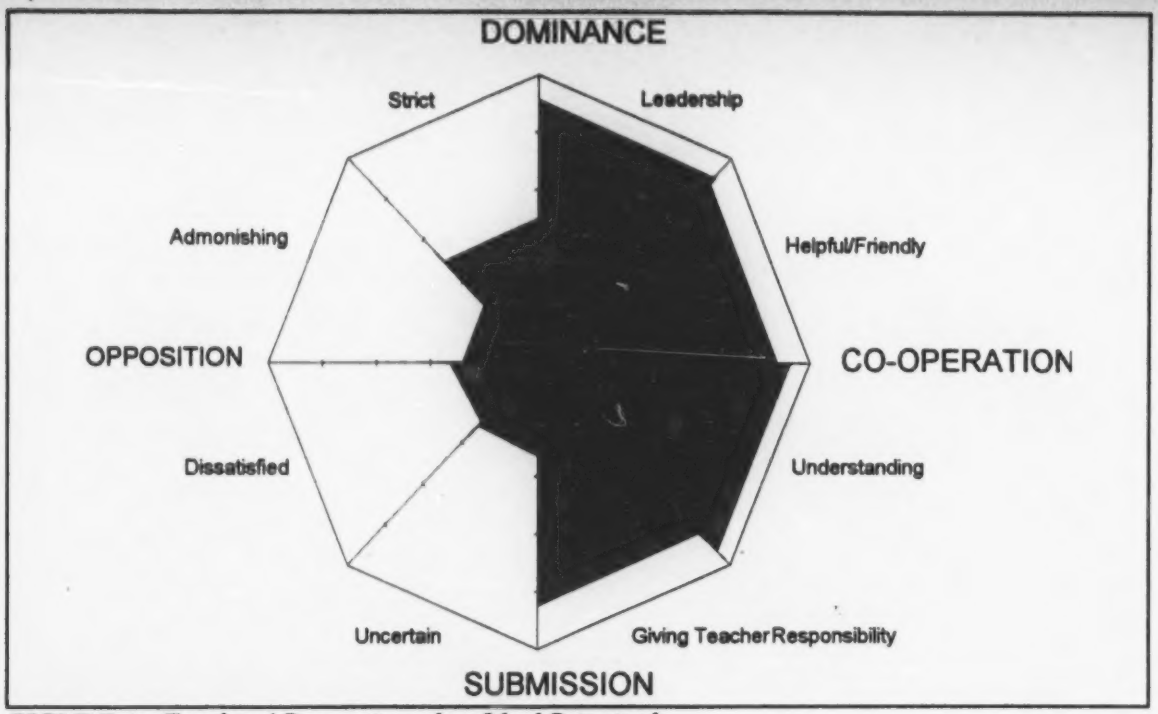

FIGURE 4. *Teachers' Perception of an Ideal Principal*

Table 5
Teachers' Actual/Ideal Perceptions of Principals

Scale	Actual Mean	Ideal Mean	% change
Leadership	23.56	28.23	16.52 **
Understanding	23.91	28.08	14.85 **
Uncertain	12.56	10.47	-19.99 **
Admonishing	11.01	8.22	-33.98 **
Helpful/Friendly	22.28	26.48	15.89 **
Teacher Responsibility	23.75	24.97	4.87 **
Dissatisfied	11.64	9.52	-22.24 **
Strict	15.72	15.19	-3.48 **

** $p<.01$

School-Level Environment Questionnaire (SLEQ)

The analysis of the SLEQ was carried out in a similar way to the PIQ. No changes were made to the SLEQ which was used in the pilot study. The teachers' perception of the actual school environment showed alpha correlations ranging from 0.72 to 0.92 with an average of 0.81. Previous research (Fisher, Fraser, Wubbels, Brekelmans, 1993) showed a range of 0.64 to 0.92 indicating that this slightly modified version of the SLEQ compares favourably with previous versions

Table 6
Teachers' Perception of the Actual School Environment

Scale	Mean	Std Dev	Alpha Reliability
Student Support	27.65	5.43	0.92
Affiliation	28.81	3.85	0.86
Professional Development	24.45	4.40	0.79
Mission Consensus	22.96	4.51	0.85
Empowerment	22.41	4.56	0.72
Innovation	22.69	4.64	0.80
Resource Adequacy	24.80	4.78	0.76
Work Pressure	28.85	4.17	0.80

N = 850

Table 7
Teachers' Perception of an Ideal School Environment

Scale	Mean	Std Dev	Alpha Reliability
Student Support	32.55	2.58	0.75
Affiliation	32.27	2.71	0.85
Professional Development	31.30	2.77	0.72
Mission Consensus	30.49	3.20	0.82
Empowerment	27.01	3.50	0.63
Innovation	29.23	3.12	0.64
Resource Adequacy	31.65	3.07	0.54
Work Pressure	20.28	3.51	0.65

N = 850

The difference between teachers' perceptions of actual and ideal school environments is shown in Table 13. It shows that teachers, generally, would prefer an increase in seven of the scales. The largest change, however, was in the area of Work Pressure, where teachers perceived that an ideal school environment would have 42% less work pressure.

Analysis of the results with two-tailed t-tests showed that all the differences between actual and ideal were significant ($p<.01$).

Table 8
Teachers' Perception of Actual/Ideal School Environments

Scale	Actual	Ideal	% change
Student Support	27.65'	32.55	15.06 **
Affiliation	28.81	32.27	10.75 **
Professional Interest	24.45	31.30	21.90 **
Mission Consensus	22.96	30.49	24.70 **
Empowerment	22.41	27.01	17.03 **
Innovation	22.69	29.23	22.38 **
Resource Adequacy	24.80	31.65	21.66 **
Work Pressure	28.85	20.28	-42.24 **

** p<.01

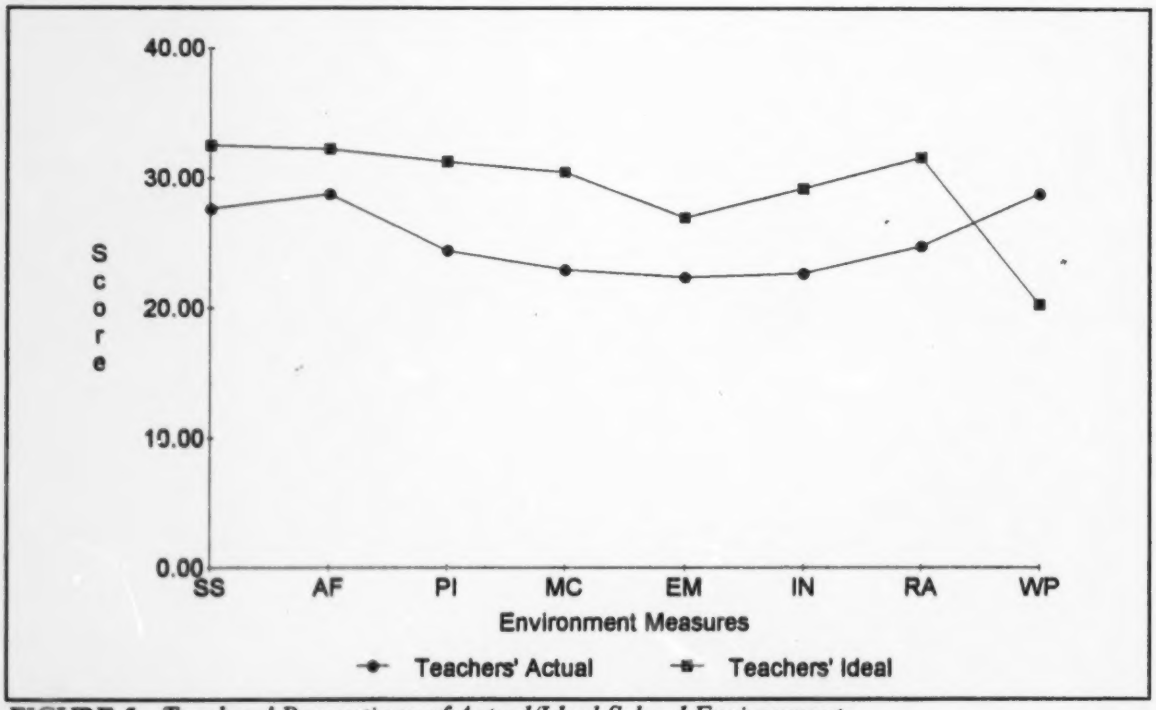

FIGURE 5. *Teachers' Perceptions of Actual/Ideal School Environments.*

Associations Between PIQ and SLEQ

A major focus of the study was to investigate associations between the principals' interpersonal behavior (as measured by the Principal Interaction Questionnaire) and the teachers' perception of the school environment (as measured by the School Level Environment Questionnaire).

The first test that was to measure the simple bivariate correlation between the eight scales on each of the questionnaires. Simple correlation coefficients have a range of -1 to +1. The results are

shown in Table 9. With a significance level of $p<.01$ it can be seen that there are 58 such relationships out of a possible 64, given that the two questionnaires have eight scales each. This is over 50 times more than can be expected by chance alone In addition to simple correlation coefficients a multiple regression analysis was also undertaken. This examined each of the scales in the SLEQ, to see how they were influenced by the scales in PIQ while the other scales were controlled. This is a more conservative test of associations between variables. The β coefficient is an indicator of this.

The β values in table 9 show that there are 18 significant relationships ($p<.01$) between the scales out of a possible 64. This is twenty-eight times more than can be expected by chance alone.

Also shown in the table is the multiple correlation R, which gives an indication of how much variance in each of the SLEQ scales can be explained by all the scales in the PIQ. As shown in table 9 all the multiple correlations were reported as being significant ($p<.01$). The R^2 value gives that indication as a percentage figure. The highest value was for the Empowerment scale (a measure of the degree to which teachers feel empowered and able to function in their environment), which shows that 29% of the total variance of this scale is accounted for by the principal's interpersonal behavior as measured by the Principal Interaction Questionnaire. Other high values were Mission Consensus (21%) and Innovation (15%).

Table 9

Associations Between PIQ Scales and SLEQ Scales in terms of Simple (r) Correlations and Multiple Regression Correlations (β).

	School Environment Scale															
	SS		AF		PI		MC		EM		IN		RA		WP	
PIQ Scale	*r*	*β*	*r*	*β*	*r*	*β*	*r*	*β*	*r*	*β*	*r*	*β*	*r*	*β*	*r*	*β*
Leadership	.20**	.20**	.17**	-.04	.24**	.07	.40**	.30**	.36**	.11*	.31**	.18**	.24**	.22**	-.07	.06
Understanding	.12**	-.10	.18**	.01	.23**	.04	.33**	.08	.40**	.00	.28**	.04	.22**	.04	-.19**	-.17*
Uncertain	-.12**	.03	-.10**	.01	-.09**	.09*	-.22**	.09*	-26**	-.09*	-.18**	.01	-.16**	.00	.07	.04
Admonishing	-.09**	.06	-.11**	.16**	-.13**	.08*	-.22**	.12*	-.33**	.05	-.16**	.06*	-.18**	-.06	.18**	-.02
Helpful/Friendly	.13**	-.01	.20**	.08	.27**	.13*	.32**	-.05	.41**	.06	.32**	.10	.16**	-.19*	-.15**	-.02
Teacher Responsibility	.20**	.19**	.22**	.16	.27**	.16**	.29**	.10*	.50**	.35**	.33**	.21**	.26**	.24**	-.13**	.04
Dissatisfied	-.17**	-.16**	-.23**	-.28**	-.24**	-.22**	-.35**	-.30**	-.37**	.01	-.24**	-.03	-.19**	.02	0.15**	-.05
Strict	-.03	.05	-.04	.12**	-.05	.11*	-.03	.14**	-.33**	-.16**	-.13**	-.04	-.09**	.01	.25**	.22**
Multiple Correlation, R		.27**		.3**		.35**		.46**		.54**		.38**		.32**		.28**
R squared		.07		.09		.12		.21		.29		.15		.10		.08

* $p<.05$ **$p<.01$

Significant Relationships

There are a number of significant relationships that can be observed in the table. The correlation between the Empowerment scale on the SLEQ and the Giving Teachers Responsibility scale on the PIQ was the highest in the study (β = .35). This provides a good example of the systems perspective of communication, where the behavior of the participants influence each other

mutually. The principals who give teachers responsibility and independence are creating a school environment that is seen by the teachers to encourage them in the decision-making process. Conversely there was a negative relationship between the feeling of empowerment by the teachers and the principals' strict behavior ($\beta = -.16$)

The study showed that teachers who perceive the principal to be giving them more responsibility are more likely to see the school environment as being innovative. Being innovative in a school involves much creative thought and, sometimes, taking risks. Teachers who feel that they have been given responsibility to do things are more likely to feel that they can try out new ideas and strategies without having to check all the time with senior staff and the principal.

There is a positive relationship between the principal's admonishing (correcting, criticising) behavior and affiliation between teachers. This can occur when the teachers draw together in opposition to a principal who is seen as being negative or overly critical. In some cases it may that the principal has had poor relations with one or more of the teachers. In other cases the principal may have tried to sack a popular member of staff. This is a defensive reaction on the part of the staff, perhaps in accord with the Leary principle that one set of behavior patterns are a response to another set (from the principal).

The results of the study also showed that dissatisfied interpersonal behavior by the principal was one of the biggest influences on the teachers' perception of the school environment. It is linked to the teachers' desire to be trusted to carry out their tasks. Principals who continually express dissatisfaction with teachers are giving the message that they cannot trust the teachers. Experience in schools suggests that teachers prefer to be working with children without constant supervision from senior staff - it allows them to build a relationship with the students in their care and also allows them to experiment with new ideas, without fear of criticism.

In many schools teachers are feeling an increased work load, brought about by changes in curriculum, learning how to handle new technology and more exhaustive means of student assessment. It was found in this study that teachers feel extra work pressure when the principal exhibits strict interpersonal behavior. The strict scale items were written keeping in mind that the items had to be dominant/opposing in terms of Leary's Model. Some of the items in the strict interpersonal behavior scale include expressions such as 'demanding', 'inflexible', 'severe', and 'keep a tight rein'.

These expressions contributed to feelings of pressure by the teachers about their environment which were identified with positive scores on items that contained terms such as 'constant pressure', 'work long hours', 'no time for teachers to relax' and 'deadlines to be met'.

Conclusion

The Principal Interaction Questionnaire has been developed to assist principals assess their own styles in their schools and to see the effect on the school environment. It has been shown to be a reliable and efficient way of gaining information. The study revealed that there were many significant relationships between the principal's interpersonal behavior with teachers and the teachers' perception of the school's environment. All the PIQ scales have at least one significant relationship ($p<.05$) with the scales on the SLEQ. The Giving Teachers Responsibility Behavior scale had six out of a possible eight significant relationships, while Leadership Behavior and Strict Behavior each had five. This is shown in Figure 6.

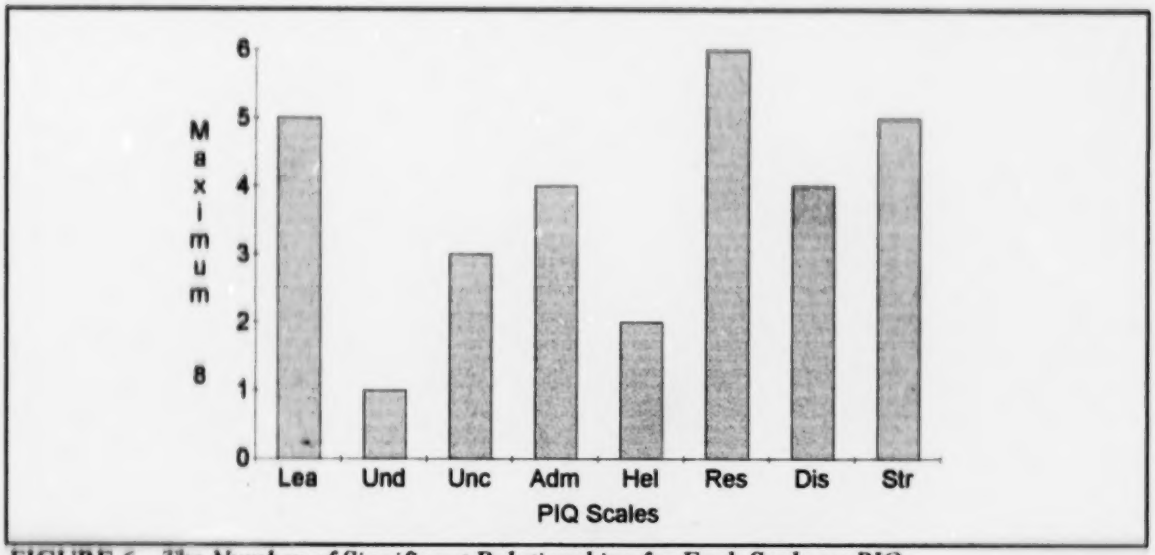

FIGURE 6. *The Number of Significant Relationships for Each Scale on PIQ.*

On the basis of this, it would appear that, in the assessment of their environment, teachers are least affected by the principal's understanding and helpful behavior. They are most affected, in their assessment of the environment, by the principal's leadership and whether they are given responsibility and independence to carry out their tasks. Uncertain, admonishing and dissatisfied behaviors by the principal were also shown to have, generally, negative influences on the teachers' assessment of the environment.

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